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Tel : (852) 2873 6860 Fax: (852) 2555 7533



### CERTIFICATE OF CALIBRATION

Certificate No.:

14CA1213 01

Page

of

Item tested

Description:

Sound Level Meter (Type 1)

Microphone

Manufacturer:

B&K 2236

B&K

Type/Model No.: Serial/Equipment No.: 2100736

4188 2288941

Adaptors used:

Item submitted by

Customer Name:

Lam Geotechnics Limited

Address of Customer:

Request No.:

13-Dec-2014

Date of receipt:

Date of test:

13-Dec-2014

Reference equipment used in the calibration

Model:

Serial No.

Expiry Date:

Traceable to:

Multi function sound calibrator

B&K 4226

2288444

20-Jun-2015

CIGISMEC

Signal generator Signal generator

DS 360 DS 360

33873 61227

09-Apr-2015 09-Apr-2015

CEPREI CEPREI

Ambient conditions

Temperature:

21 ± 1 °C

Relative humidity: Air pressure:

60 ± 5 % 1010 ± 5 hPa

Test specifications

The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580; Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 3, between the free-field and pressure responsess of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Date:

15-Dec-2014

Company Chop:

Huang Jian Min/∮eng Jun Qi

Comments: The results reported in his certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

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Form No CARP152-1/Issue 1/Rev C/01/02/2007



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### CERTIFICATE OF CALIBRATION

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Certificate No.:

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#### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertanity (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	С	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	1.00
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	Α	Pass	0.3	
	С	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/103 at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/104 at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

#### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertanity (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip 13-Dec-2014 End

Checked by:

Date:

Lam Tze Wai 15-Dec-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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Form No.CARP152-2/Issue 1/Rev.C/01/02/2007



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Tel: (852) 2873 6860 Fax: (852) 2555 7533



### CERTIFICATE OF CALIBRATION

Certificate No.:

15CA1203 04-01

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Item tested

Description:

Sound Level Meter (Type 1)

Microphone

**Expiry Date:** 

Manufacturer:

B&K

B&K

Type/Model No .:

2236

4188

Serial/Equipment No.:

2100736

2288941

Adaptors used:

Item submitted by

Customer Name:

Lam Geotechnics Limited

Address of Customer:

Request No.

Date of receipt:

03-Dec-2015

Date of test:

04-Dec-2015

Reference equipment used in the calibration

Description:

Signal generator

Signal generator

Multi function sound calibrator

Model: B&K 4226

DS 360

DS 360

Serial No. 2288444 33873

61227

19-Jun-2016 16-Apr-2016 16-Apr-2016

Traceable to:

CIGISMEC CEPREI CEPRE

Ambient conditions

Temperature:

Relative humidity: Air pressure:

22 ± 1 °C 50 ± 10 %

1010 ± 10 hPa

### Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152

The electrical tests were performed using an electrical signal substituted for the microphone which was removed and 2, replaced by an equivalent capacitance within a tolerance of +20%

The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference 3, between the free-field and pressure responsess of the Sound Level Meter.

#### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Huang Jian Min/Feng Jun Qi

Actual Measurement data are documented on worksheets.

Approved Signatory:

Date:

05-Dec-2015

Company Chop:

The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

C Soils & Materials Engineering Co., Ltd.

Form No.CARP152-1/Issue 1/Rev.C/01/02/2007



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## CERTIFICATE OF CALIBRATION

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1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertanity (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
3	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/103 at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/104 at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

#### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertanity (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip 04-Dec-2015 End

Checked by:

Date:

Lam Tze Wai 05-Dec-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

Soils & Materials Engineering Co., Ltd.

Form No.CARP152-2/Issue 1/Rev.C/01/02/2007



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## CERTIFICATE OF CALIBRATION

Certificate No.:

15CA0528 04-03

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Tel: (852) 2873 6860

Fax: (852) 2555 7533

2

of

Item tested

Description: Manufacturer: Acoustical Calibrator (Class 1)

Type/Model No.: Serial/Equipment No.: Rion Co., Ltd. NC-73 10465798

Adaptors used:

10

Item submitted by

Curstomer:

Lam Geotechnics Ltd.

Address of Customer:

Request No.: Date of receipt:

28-May-2015

Date of test:

30-May-2015

#### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

#### **Ambient conditions**

Temperature:  $21 \pm 1$  °C Relative humidity:  $60 \pm 10$  % Air pressure:  $1000 \pm 5$  hPa

### Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

n/Feng Jun Qi

Huano Jian

Approved Signatory:

Date: 01-Jun-2015

Company Chos

SENGINEER SENGI

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

@ Soils & Materials Engineering Co., Ltd.

Form No. CARP156-1/Issue 1/Rev. D/01/03/2007



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Tel: (852) 2873 6860 Fax: (852) 2555 7533



### CERTIFICATE OF CALIBRATION

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Certificate No.:

15CA0528 04-03

Page:

of

#### 1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency	Output Sound Pressure	Measured Output	Estimated Expanded
Shown	Level Setting	Sound Pressure Level	Uncertainty
Hz	dB	dB	dB
1000	94.00	94.06	0.10

#### 2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz

STF = 0.002 dB

Estimated expanded uncertainty

0.005 dB

#### 3, **Actual Output Frequency**

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz

Actual Frequency = 966.3 Hz

Estimated expanded uncertainty

0.1 Hz

Coverage factor k = 2.2

#### **Total Noise and Distortion** 4,

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz

TND = 0.5 %

Estimated expanded uncertainty

0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

End

Fung Chi Yip

Checked by:

Lam Tze Wai

Date:

30-May-2015

Date:

01-Jun-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



TISCH ENVIRONMENTAL, INC. 145 SOUTH MIAMI AVE VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX

# ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

	Tisch	Rootsmeter Orifice I.I		0005	Pa (mm) -	749.3
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1 2 3 4 5	NA NA NA NA NA	NA NA NA NA NA	1.00 1.00 1.00 1.00	1.3930 0.9800 0.8790 0.8350 0.6900	3.2 6.4 7.9 8.7 12.7	2.00 4.00 5.00 5.50 8.00

### DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9883 0.9841 0.9820 0.9810 0.9757	0.7095 1.0042 1.1172 1.1749 1.4141	1.4090 1.9926 2.2278 2.3365 2.8179	0.9957 0.9915 0.9894 0.9884 0.9830	0.7148 1.0117 1.1256 1.1837 1.4247	0.8889 1.2570 1.4054 1.4740 1.7777
Ostd slop intercept coefficient y axis =	t (b) = ent (r) =	2.00072 -0.01209 0.99995 Pa/760)(298/Ta)]	Qa slope intercept coefficie y axis =	= (b) $=$	1.25282 -0.00763 0.99995

### CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta) Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa] Qa = Va/Time

For subsequent flow rate calculations:

Qstd =  $1/m\{[SQRT(H2O(Pa/760)(298/Ta))] - b\}$  $Qa = 1/m\{[SQRT H2O(Ta/Pa)] - b\}$ 



Location :		CMA1b			Calbration Date :				2-Oct-15
Equipment no.		EL452				Calbratio	on Due Date	:	2-Dec-15
CALIBRATION OF CON	ITINUOUS	FLOW RI	ECORDER						
				Ambient C	ondition				
Temperature, T <sub>a</sub>		301		Kelvin	Pressure, P	a	1	012	mmHg
			Orifice Tr	ansfer Sta	ndard Inforr	nation			
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bc	Т	-0.01209
Last Calibration Date		30-Jun-1	5		(Нх	P <sub>a</sub> / 101	3.3 x 298 /	T <sub>a</sub> ) 1	/2
Next Calibration Date		30-Jun-1	6		=	$m_c x$	$Q_{std} + b_c$		
				Calibratio	n of TSP				
Calibration	Man	ometer R	eading	C	Q <sub>std</sub> Continuous Flow			IC	
Point	H (i	nches of	water)	(m <sup>3</sup> / min.)		Reco	rder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)	
	(up)	(down)	(difference)	X-axis		(CFM)			Y-axis
1	5.8	5.8	11.6	1.6	6988	58		57.6732	
2	4.2	4.2	8.4	1.4	1465	52		51.7070	
3	3.6	3.6	7.2	1.3	3396	45		44.7465	
4	2.3	2.3	4.6	1.0	)720	36		35.7972	
5	1.4	1.4	2.8	0.8	3377	:	28		27.8422
By Linear Regression of	Y on X								
	Slope, m	=	35.69	958	Inte	ercept, b =	-2.	0989	
Correlation Co	oefficient*	=	0.99	143					
Calibration	Accepted	=	Yes/	<del>\o</del> **					
* if Correlation Coefficier	nt < 0.990.	check and	l recalibration	n again.					
				Ü					
** Delete as appropriate.									
Remarks :									
Calibrated by		Kit Au				Checked	by	:	Derek Lo
Data :	2	2-Oct-15				Date		:	2-Oct-15



### Lam Geotechincs Limited

Location :		CMA1b			Calbrati	on Date	: 30-Nov-15
Equipment no.		EL452			Calbrati	on Due Date	: 30-Jan-16
CALIBRATION OF CON	TINUOUS	FLOW RI	CORDER				
				Ambient Condition			
Temperature, T <sub>a</sub>		295		Kelvin <b>Pressure, I</b>	a	1	019 mmHg
			Orifice Tr	ansfer Standard Infor	mation		
Equipment No.		EL086		<b>Slope, m</b> <sub>c</sub> 2.000	)72	Intercept, bc	-0.01209
Last Calibration Date		30-Jun-1	5	(H:	x P <sub>a</sub> / 101	13.3 x 298 /	$(T_a)^{1/2}$
Next Calibration Date		30-Jun-1	6	=	m <sub>c</sub> x	$Q_{std} + b_c$	
				Calibration of TSP			
Calibration	Mar	nometer R	eading	Q <sub>std</sub> Continuous Flow		uous Flow	IC
Point	H (i	inches of	water)	(m <sup>3</sup> / min.)	Reco	order, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)
	(up)	(down)	(difference)	X-axis	(CFM)		Y-axis
1	6.1	6.1	12.2	1.7656	58		58.4579
2	4.8	4.8	9.6	1.5669	52		52.4105
3	3.7	3.7	7.4	1.3764	44		44.3474
4	2.4	2.4	4.8	1.1097		36	36.2842
5	1.5	1.5	3.0	0.8786		24	24.1895
By Linear Regression of	Y on X						
	Slope, m	=	37.98		tercept, b =	-7.	7457
Correlation Co		=	0.99	-			
Calibration	Accepted	=	Yes/	<del>10**</del>			
* if Correlation Coefficien	nt < 0.990,	check and	recalibration	n again.			
** Delete as appropriate.							
Damada							
Remarks :							
		Kit Au			Checked	d by	: Derek Lo
Calibrated by  Date	30	0-Nov-15			Date	•	: 30-Nov-15



Location :		CMA2a			: 2-Oct-15				
Equipment no.		EL449				Calbratio	on Due Date	: 2-Dec-15	
CALIBRATION OF CONT	INUOUS I	FLOW RE	CORDER						
				Ambient (	Condition				
Temperature, T <sub>a</sub>		301		Kelvin	Pressure, P	a	10	12 mmHg	
			Orifice T	ransfer Sta	andard Infor	mation			
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bc	-0.01209	
Last Calibration Date		30-Jun-1	5		(H:	x P <sub>a</sub> / 10	13.3 x 298 / T	$T_a)^{1/2}$	
Next Calibration Date		30-Jun-1	6		=		$Q_{std} + b_c$		
				Calibratio	on of TSP				
Calibration	Mar	nometer R	eading	C	Q <sub>std</sub> Continuous Flow		uous Flow	IC	
Point	Н (	inches of	water)	(m <sup>3</sup> / min.)		Rec	order, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)	
	(up)	(down)	(difference)	X-	axis	(CFM)		Y-axis	
1	5.7	5.7	11.4	1.0	6841	58		57.6732	
2	4.5	4.5	9.0	1.4	4971	50		49.7183	
3	3.4	3.4	6.8	1.3	3021	42		41.7634	
4	2.4	2.4	4.8	1.0	0949	38		37.7859	
5	1.5	1.5	3.0	0.8	8669		30	29.8310	
By Linear Regression of Y	on X								
	Slope, m	=	33.0	986	Int	ercept, b =	0.69	900	
Correlation C	oefficient*	=	0.99	926					
Calibration	Accepted	=	Yes/	<del>\</del> 0**					
								_	
* if Correlation Coefficient	< 0.990. c	check and r	ecalibration	again.					
	,			3					
** Delete as appropriate.									
Remarks :									
Calibrated by		Kit Au				Checked	by	: Derek Lo	
Date :	2	2-Oct-15				Date		: 2-Oct-15	



### Lam Geotechincs Limited

Location :		CMA2a		Calbration Date :				:	: 30-Nov-15	
Equipment no.		EL449				Calbrati	on Due Date	:	30-Jan-16	
CALIBRATION OF CONT	INUOUS I	FLOW REG	CORDER							
			_	Ambient (	Condition					
Temperature, T <sub>a</sub>		295	5	Kelvin	Pressure, P	a	10	019	mmHg	
			Orifice T	ransfer Sta	andard Infor	mation				
Equipment No.		EL086		Slope, m <sub>c</sub>			Intercept, bc		-0.01209	
Last Calibration Date		30-Jun-1	5			x P <sub>2</sub> / 10	)13.3 x 298 /	$T_{\alpha}$ ) $\frac{1}{2}$	2	
Next Calibration Date		30-Jun-1	6		=		$x Q_{std} + b_c$	a,		
				Calibratio	on of TCD	-	0.00			
Calibration	Mai	nometer R	eading	ı		Conti	nuous Flow		IC	
Point		inches of		siu			order, W			
rome	(up)	(down)	(difference)		,		(CFM)	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.3 <b>Y-axis</b>		
1	6.7	6.7	13.4		8501	'	62		62.4895	
2	5.3	5.3	10.4		6462		55		55.4342	
3	4.1	4.1	8.2		4486		48		48.3789	
4	2.7	2.7	5.4		1767	38			38.3000	
5	1.6	1.6	3.2		9072	30			30.2368	
By Linear Regression of Y				<u> </u>				<u> </u>		
-,	Slope, m	=	34.6	157	Int	ercept, b =	-1.0	6936		
Correlation C		=	0.99	994	-	• •				
Calibration	Accepted	=	Yes/	Ne**	-					
					-					
* if Correlation Coefficient	< 0.990, 0	check and i	recalibration	again.						
** Delete as appropriate.										
Remarks :										
		Kit Au				Checke	d by	:	Derek Lo	
Calibrated by	3	0-Nov-15				Date	•	:	30-Nov-15	



Date

				g			,,,	0.0.1.15
Location :		CMA3a				ion Date	:	2-Oct-15
Equipment no.		EL333			Calbrat	ion Due Date	:	2-Dec-15
CALIBRATION OF CON	ITINUOUS	FLOW R	CORDER					
			,	Ambient Condition				
Temperature, T <sub>a</sub>		301		Kelvin <b>Pressure, P</b>	a		1012	mmHg
			Orifice Tra	ansfer Standard Inform	mation			
Equipment No.		EL086		<b>Slope, m</b> <sub>c</sub> 2.000	72	Intercept, bc	Т	-0.01209
Last Calibration Date	30-Jun-15			(Hx	P <sub>a</sub> / 10	13.3 x 298 /	$T_a$ ) <sup>1</sup>	/2
Next Calibration Date		30-Jun-1	6	=		$Q_{std} + b_c$		
				Calibration of TSP				
Calibration	Man	ometer R		Q <sub>std</sub>	Contin	uous Flow		IC
Point		nches of v	-		(m <sup>3</sup> / min.) Recorder, W		(W(P <sub>a</sub> /10	013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)
	(up)	(down)	(difference)	, ,	X-axis (			Y-axis
1	5.5	5.5	11.0	1.6544	Ì	54		53.6957
2	4.3	4.3	8.6	1.4635		48		47.7296
3	3.3	3.3	6.6	1.2829		44		43.7521
4	2.3	2.3	4.6	1.0720		38		37.7859
5	1.4	1.4	2.8	0.8377		32		31.8197
By Linear Regression of	Y on X							
	Slope, m	=	26.5	104 Int	tercept, b =	= 9.	.4978	
Correlation Co	oefficient*	=	0.99	91				
Calibration	Accepted	=	Yes/	<del></del>				
* if Correlation Coefficier	nt < 0.990,	check and	l recalibratior	n again.				
** Delete as appropriate.								
Remarks :								
·-···-·								
O-liberate d l		Kit Au			Checke	d by	:	Derek Lo
Calibrated by	2	2-Oct-15			Date	-	:	2-Oct-15



				_			_	-		
Location :		CMA3a				Calbrati	on Date	:	30-Nov-15	
Equipment no.		EL333				Calbrati	on Due Date	:	30-Jan-16	
CALIBRATION OF CON	ITINUOUS	S FLOW RI	CORDER							
			,	Ambient C	ondition					
Temperature, T <sub>a</sub>		295	;	Kelvin	Pressure, P	a		1019	mmHg	
			Orifice Tr	ansfer Star	ndard Inforn	nation				
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000		Intercept, bc	Т	-0.01209	
Last Calibration Date		30-Jun-1	5	1	( H x	P <sub>a</sub> / 101				
Next Calibration Date		30-Jun-1	6	$(HxP_a/1013.3x298/T_a)^{1/2}$ = $m_c x Q_{std} + b_c$						
				Calibration	of TCD		0.00			
Calibration	Mar			Calibration		Continu	ous Flow		IC	
Calibration		nometer R	_		std			04/D	1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)	
Point		inches of		(m <sup>3</sup> / min.) <b>X-axis</b>			rder, W	(VV(P <sub>a</sub> /	Y-axis	
1	(up) 5.8	(down) 5.8	(difference)				56		56.4421	
2		4.5		1.7218						
3	4.5	3.5	9.0 7.0		5173		44		50.3947	
4	3.5 2.3	2.3	4.6		3389					
5	1.5	1.5	3.0		)865 3786		28		36.2842 28.2211	
By Linear Regression of		1.5	3.0	0.0	700		20		20.2211	
by Emocr Regrossion of	Slope, m	=	33.3	404	Inte	ercept, b =	-0	.4922		
Correlation Co		=	0.99							
Calibration		=	Yes/							
	·									
* if Correlation Coefficier	nt < 0.990,	, check and	d recalibration	n again.						
** Delete as appropriate.										
Remarks :										
		Kit Au				Checke	d bv		Derek Lo	
Calibrated by	3	0-Nov-15				Date	<b>-</b>	: —	30-Nov-15	
Date										



Location :		CMA4a				Calbration Date : 2-Oct-15				
Equipment no.		EL390				Calbr	ation Due Date	:	2-Dec-15	
CALIBRATION OF CON	TINUOUS	FLOW RE	CORDER							
				Ambient C	ondition					
Temperature, T <sub>a</sub>		301		Kelvin	Pressure, P	a		1012	mmHg	
			Orifice Tr	ansfer Sta	ndard Inform	nation				
Equipment No.	EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bo	,	-0.01209		
Last Calibration Date		30-Jun-1	5		(Hx	P <sub>a</sub> / 1	013.3 x 298	/T <sub>a</sub> ) 1	//2	
Next Calibration Date		30-Jun-1	6		=		$x Q_{std} + b_c$			
				Calibratio	n of TCD					
Calibration	Mar	nometer Re	nadina			Cont	inuous Flow		IC	
			_					0AV/D /4	013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31	
Point		inches of v	-			Re	corder, W	(W(P <sub>a</sub> /1		
	(up)	(down)	(difference)	X-axis			(CFM)		Y-axis	
1	6.1	6.1	12.2	1.7420			58		57.6732	
2	4.9	4.9	9.8	1.5619			50		49.7183	
3	4.0	4.0	8.0	1.4	4118		44		43.7521	
4	2.6	2.6	5.2	1.	1394		34		33.8084	
5	1.7	1.7	3.4	0.	9225		28		27.8422	
By Linear Regression of	Y on X									
	Slope, m	=	36.4	494	Int	ercept, b	= -6	6.8487		
Correlation Co	oefficient*	=	0.99	967						
Calibration	Accepted	=	Yes/l	No**						
* if Correlation Coefficien	t < 0.990,	check and	recalibration	again.						
** Delete as appropriate.										
Davis and an a										
Remarks :										
		Kit Διι				Charl	and by		Derek Lo	
Calibrated by		Kit Au					ked by	: <u> </u>	Derek Lo	
Date :		2-Oct-15				Date		:	2-Oct-15	



Location

# Calibration Data for High Volume Sampler (TSP Sampler)

Calbration Date

Equipment no.		EL390				Calbra	ation Due Date	:	30-Jan-16	
CALIBRATION OF CON	TINUOUS	FLOW RE	CORDER							
				Ambient C	ondition					
Temperature, T <sub>a</sub>		295		Kelvin	Pressure, P	a	1	019	mmHg	
			Orifice Tr	ansfer Sta	ndard Inforr	nation				
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	Intercept, bc		-0.01209		
Last Calibration Date	30-Jun-15				(Нх	P <sub>a</sub> / 1	013.3 x 298 /	′T <sub>a</sub> )	1/2	
Next Calibration Date		30-Jun-1	6	$= m_c \times Q_{std} + b_c$						
				Calibratio	n of TSP					
Calibration	Mar	nometer Ro	eading	Q	std	Cont	inuous Flow		IC	
Point	H (i	inches of v	water)	(m <sup>3</sup> / min.) Record		corder, W	(W(P	/1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.3		
	(up)	(down)	(difference)	X-axis			(CFM)		Y-axis	
1	6.4	6.4	12.8	1.8084			58		58.4579	
2	5.1	5.1	10.2	1.6149			52		52.4105	
3	3.9	3.9	7.8	1.4	1130		46		46.3632	
4	2.6	2.6	5.2	1.1	548	34			34.2684	
5	1.6	1.6	3.2	0.9	9072		24		24.1895	
By Linear Regression of	Y on X									
	Slope, m	=	38.5	259	Inte	ercept, b	= -10	0.0149	<u> </u>	
Correlation Co	pefficient*	=	0.99	962						
Calibration	Accepted	=	Yes/f	<del>\0</del> **						
* if Correlation Coefficier	nt < 0.990,	check and	d recalibration	n again.						
** Dalata aa aa aa aa a										
** Delete as appropriate.										
Remarks :										
Calibrated by		Kit Au				Check	ked by	:	Derek Lo	
Date :	3	0-Nov-15				Date		:	30-Nov-15	



Location :		CMA5b			Calbratio	on Date	: 2-Oct-15
Equipment no.		EL222			Calbratio	on Due Date	: 2-Dec-15
CALIBRATION OF CON	ITINUOUS	S FLOW RI	ECORDER				
				Ambient Condition			
Temperature, T <sub>a</sub>		301		Kelvin Pressure, P	a	1	012 mmHg
			Orifice T	ransfer Standard Infor	mation		
Equipment No.		EL086		Slope, m <sub>c</sub> 2.000		Intercept, bc	-0.01209
Last Calibration Date		30-Jun-1	5	(H)	P <sub>a</sub> / 101	3.3 x 298 /	$(T_a)^{1/2}$
Next Calibration Date $30$ -Jun-16 $= m_c \times Q_{std} + b_c$							
				Calibration of TSP			
Calibration	Mar	nometer R	eading	Q <sub>std</sub>	Continu	uous Flow	IC
Point	H (i	inches of	water)	(m <sup>3</sup> / min.)	Reco	order, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)
	(up)	(down)	(difference)	X-axis	(0	CFM)	Y-axis
1	5.8	5.8	11.6	1.6988		60	59.6619
2	4.6	4.6	9.2	1.5135	55		54.6901
3	3.6	3.6	7.2	1.3396	50		49.7183
4	2.4	2.4	4.8	1.0949		42	41.7634
5	1.5	1.5	3.0	0.8669	34		33.8084
By Linear Regression of  Correlation Co	Slope, m	=	31.14 0.99 Yes/\$	86	ercept, b =	7.3	3520
* if Correlation Coefficier  ** Delete as appropriate.  Remarks:		check and	recalibration	n again.			
Calibrated by		Kit Au			Checked	by	: Derek Lo
Date		2-Oct-15		Date			: 2-Oct-15



Location :		CMA5b		J		Calbratio	n Date	: 30-Nov-15	
Equipment no.		EL222				Calbratio	n Due Date	: 30-Jan-16	
CALIBRATION OF CON	TINUOUS	FLOW RE	CORDER						
				Ambient (	Condition				
Temperature, T <sub>a</sub>		295		Kelvin	Pressure, P	a	1	019 mm	Hg
			Orifice T	ransfer Sta	andard Infor	mation			
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bc	-0.01209	
Last Calibration Date		30-Jun-1	5		(H)	(P <sub>a</sub> / 101	3.3 x 298 /	T <sub>a</sub> ) <sup>1/2</sup>	
Next Calibration Date		30-Jun-1	6	$= m_c \times Q_{std} + b_c$					
				Calibratio	on of TSP				
Calibration	Man	ometer R	eading	C	Q <sub>std</sub> Continuous Flow		IC		
Point	H (i	nches of	water)	(m <sup>3</sup>	(m³ / min.)		rder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup>	/35.31)
	(up)	(down)	(difference)	X-	-axis (		FM)	Y-axis	
1	5.2	5.2	10.4	1.0	1.6306		62	62.4895	
2	4.3	4.3	8.6	1.4	4834		58	58.4579	
3	3.3	3.3	6.6	1.3	3002		53	53.4184	
4	2.0	2.0	4.0	1.0	0136		46	46.3632	
5	1.3	1.3	2.6	0.8	8183		38	38.3000	
By Linear Regression of	Y on X								
	Slope, m	=	28.8	602	Inte	ercept, b =	15.	7526	
Correlation Co	pefficient*	=	0.99	958					
Calibration	Accepted	=	Yes/ł	<del>√0</del> **					
* if Correlation Coefficien	it < 0.990,	check and	recalibration	again.					
	,			Ü					
** Delete as appropriate.									
Remarks :									
Calibrated by		Kit Au				Checked	by	: Derek Lo	

Date

30-Nov-15

30-Nov-15

Date



Location :		CMA6a				Calbratio	on Date	: 2-Oct-15	
Equipment no.		EL448				Calbratio	on Due Date	: 2-Dec-15	
CALIBRATION OF CON	ITINUOUS	FLOW RI	ECORDER						
		. =		Ambient C	ondition				
Temperature, T <sub>a</sub>		301		Kelvin	Pressure, P	a	1	012 mmHg	<u> </u>
			Orifice Tr	ansfer Sta	ndard Inforr	mation			
Equipment No.		EL086		Slope, m <sub>c</sub>	2.0007	72	Intercept, bc	-0.01209	
Last Calibration Date		30-Jun-1	5		(Нх	P <sub>a</sub> / 101	3.3 x 298 /	$T_a)^{1/2}$	
Next Calibration Date	te 30-Jun-16 = $m_c \times Q_{std} + b_c$								
				Calibratio	n of TSP				
Calibration	Man	ometer R	eading	C	std	Continu	ious Flow	IC	
Point	H (i	nches of	water)	(m <sup>3</sup> / min.)		Reco	rder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35	.31)
	(up)	(down)	(difference)	X-axis		(C	CFM)	Y-axis	
1	6.5	6.5	13.0	1.7980			56	55.6845	
2	5.3	5.3	10.6	1.6	6242		50	49.7183	
3	4.0	4.0	8.0	1.4	1118		43	42.7577	
4	2.6	2.6	5.2	1.1	1394		38	37.7859	
5	1.6	1.6	3.2	0.8	3951		30	29.8310	
By Linear Regression of	Y on X								
	Slope, m	=	27.60	043	Inte	ercept, b =	5.2	2357	
Correlation Co	oefficient*	=	0.99	149					
Calibration	Accepted	=	Yes/	<del>\0</del> **					
* if Correlation Coefficier	nt < 0 990	check and	l recalibration	n again					
				. aga					
** Delete as appropriate.									
Remarks :									
Calibrated by		Kit Au				Checked	l by	: Derek Lo	
Data :		2-Oct-15	<del>_</del>	Date				: 2-Oct-15	



### Lam Geotechincs Limited

Location :		CMA6a			Calbratio	on Date	: 30-Nov-15	
Equipment no. :		EL448		Calbration Due Date : 30-Jan-				
CALIBRATION OF CON	TINUOUS	FLOW RE	CORDER					
				Ambient Condition				
Temperature, T <sub>a</sub>		295		Kelvin Pressure, P	a	1	019 mmHg	
			Orifice Tr	ansfer Standard Infor	mation			
Equipment No.		EL086		<b>Slope</b> , m <sub>c</sub> 2.000	72	Intercept, bc	-0.01209	
Last Calibration Date	te 30-Jun-15			(H)	(P <sub>a</sub> / 101	3.3 x 298 /	$T_a)^{1/2}$	
Next Calibration Date 30-Jun-16 = $m_c \times Q_{std} + b_c$								
				Calibration of TSP				
Calibration	Mar	nometer Re	eading	Q <sub>std</sub>	Continu	uous Flow	IC	
Point	H (i	inches of v	water)	(m <sup>3</sup> / min.)	Reco	rder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)	
	(up)	(down)	(difference)	X-axis	(C	CFM)	Y-axis	
1	6.6	6.6	13.2	1.8363		60	60.4737	
2	5.3	5.3	10.6	1.6462		54	54.4263	
3	4.5	4.5	9.0	1.5173	50		50.3947	
4	2.6	2.6	5.2	1.1548	40		40.3158	
5	1.5	1.5	3.0	0.8786		30	30.2368	
By Linear Regression of								
	Slope, m	=	30.9	<del></del>	ercept, b =	3.	5936	
Correlation Co		=	0.99					
Calibration	Accepted	=	Yes/P	<del>\0</del> ^^				
* if Correlation Coefficier	nt < 0.990,	check and	I recalibration	n again.				
** Delete as appropriate.								
Remarks :								
Calibrated by		Kit Au			Checked	l by	: Derek Lo	
Date	3	0-Nov-15			Date		: 30-Nov-15	



Location :	MA1e					Calbration Date : 2-Oct-				
Equipment no.		EL455				Calbrat	:	2-Dec-15		
CALIBRATION OF CON	ITINUOUS	S FI OW RI	FCORDER							
				Ambient	: Condition					
Temperature, T <sub>a</sub>		301		Kelvin	Pressure, P	a	10	12	mmHg	
			Orifice	Transfer S	tandard Info	rmation				
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bc		-0.01209	
Last Calibration Date		30-Jun-1	5		( H	x P <sub>a</sub> / 1	013.3 x 298 / T	$\Gamma_a$ ) 1/	/2	
Next Calibration Date		30-Jun-1	6				$x Q_{std} + b_c$			
				Calibrat	ion of TSP					
Calibration	Mar	ometer R	eading	C	) <sub>std</sub>	Cont	inuous Flow		IC	
Point	H (i	inches of	water)	(m <sup>3</sup>	<sup>3</sup> / min.) Rec		Recorder, W (W(P <sub>a</sub> /101		/1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)	
	(up)	(down)	(difference)	X-	X-axis		(CFM)		Y-axis	
1	6.4	6.4	12.8	1.7842			58		57.6732	
2	5.5	5.5	11.0	1.6544			52		51.7070	
3	4.2	4.2	8.4	1.4	4465	46			45.7408	
4	2.6	2.6	5.2	1.	1394	38			37.7859	
5	1.6	1.6	3.2	0.8	3951		30		29.8310	
By Linear Regression of	Y on X									
	Slope, m	=	30.0	584	Int	ercept, b =	2.9	492		
Correlation Co	oefficient*	=	0.99	970						
Calibration	Accepted	=	Yes/l	Vo**						
if Correlation Coefficier	nt < 0 990	check and	l recalibratio	n again						
ii Correlation Coemicier	it < 0.550,	oncox and	rccalibratio	ii agaiii.						
** Delete as appropriate.										
Remarks :										
Calibrated by		Kit Au				Checke	d by	:	Derek Lo	
Date		2-Oct-15				Date		: -	2-Oct-15	



Location :	MA1e				: 30-Nov-15						
Equipment no.		EL455				Calbrat	tion Due Date	: 30-Jan-16			
CALIBRATION OF CON	TINUOUS	FLOW RI	<u>ECORDER</u>								
				Ambient	Condition						
Temperature, T <sub>a</sub>		295		Kelvin	Pressure, P	a	10	19 mmHg			
			Orifice '	Transfer S	tandard Info	rmation					
Equipment No.		EL086		Slope, m <sub>c</sub>			Intercept, bc	-0.01209			
Last Calibration Date		30-Jun-1	5		( H	x P <sub>a</sub> / 1	013.3 x 298 / T	$\Gamma_a$ ) $^{1/2}$			
Next Calibration Date	t <b>e</b> 30-Jun-16				$= m_c \times Q_{std} + b_c$						
				Calibrat	ion of TSP						
Calibration	Mar	nometer R	eading	C	) <sub>std</sub>	Con	IC				
Point	H (i	inches of	water)	(m <sup>3</sup>	3 / min.) Red		ecorder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)			
	(up)	(down)	(difference)	X-	axis	exis (CFM)		Y-axis			
1	6.2	6.2	12.4	1.7	1.7800		59	59.4658			
2	5.4	5.4	10.8	1.6616			50	50.3947			
3	4.0	4.0	8.0	1.4	4309	44		44.3474			
4	2.5	2.5	5.0	1.	1325	30		30.2368			
5	1.5	1.5	3.0	0.8	8786		20	20.1579			
By Linear Regression of	Y on X										
	Slope, m	=	42.0	478	Inte	ercept, b =	-16.9	9673			
Correlation Co	efficient*	=	0.99	948							
Calibration	Accepted	=	Yes/	Ne**							
* if Correlation Coefficier	nt < 0.990.	check and	l recalibration	n again.							
comolation coomolo.	0.000,	onoon and	. roodiiordiio	aga							
** Delete as appropriate.											
Remarks :											
Calibrated by		Kit Au				Checke	ed by	: Derek Lo			
Date	30	0-Nov-15				Date		: 30-Nov-15			



Location :		MA1w	w Calbration Date :							
Equipment no.		EL080				Calbrat	ion Due Date	: 2-Dec-15		
CALIBRATION OF CON	TINUOUS	FLOW RI	ECORDER							
				Ambient	Condition					
Temperature, T <sub>a</sub>		301		Kelvin	Pressure, P	a	10	mmHg		
			Orifice 1	ransfer St	andard Info	rmation				
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bc	-0.01209		
Last Calibration Date		30-Jun-1	5		(H	x P <sub>a</sub> / 10	013.3 x 298 /	$T_a)^{1/2}$		
Next Calibration Date	<b>e</b> 30-Jun-16			$= m_c \times Q_{std} + b_c$						
				Calibrati	on of TSP					
Calibration	Man	ometer R	eading	C	) <sub>std</sub>	Conti	nuous Flow	IC		
Point	H (i	nches of	water)	(m <sup>3</sup>	<sup>3</sup> / min.) Recorder, W		(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31			
	(up)	(down)	(difference)	X-	-axis		(CFM)	Y-axis		
1	6.3	6.3	12.6	1.7	7702		58	57.6732		
2	5.1	5.1	10.2	1.5	5933		50	49.7183		
3	4.0	4.0	8.0	1.4	1118		42	41.7634		
4	2.4	2.4	4.8	1.0	0949		32	31.8197		
5	1.5	1.5	3.0	0.8	3669		25	24.8591		
By Linear Regression of	Y on X									
	Slope, m	=	35.9	011	Int	ercept, b =	-7.2	2075		
Correlation Co	pefficient*	=	0.99	959						
Calibration	Accepted	=	Yes/	Vo**						
* if Correlation Coefficier	nt < 0 990	check and	l recalibration	n again						
				3						
** Delete as appropriate.										
Remarks :										
Calibrated by		Kit Au				Checke	d by	: Derek Lo		
Date :	2	!-Oct-15				Date		: 2-Oct-15		



Location :		MA1w		Calbration Date : 30					
Equipment no.		EL080			Calbra	tion Due Date	: 30-Jan-16		
CALIBRATION OF CON	TINUOUS	FLOW RI	ECORDER						
				Ambient Condition					
Temperature, T <sub>a</sub>		295	;	Kelvin Pressure, F	D <sub>a</sub>	10	019 mmHg		
			Orifice T	ransfer Standard Info	rmation				
Equipment No.		EL086		<b>Slope</b> , m <sub>c</sub> 2.000	)72	Intercept, bc	-0.01209		
Last Calibration Date		30-Jun-1	5	( H	x P <sub>a</sub> / 1	013.3 x 298 /	$T_a)^{1/2}$		
Next Calibration Date		30-Jun-1	6	$= m_c \times Q_{std} + b_c$					
				Calibration of TSP					
Calibration	Man	ometer R	eading	Q <sub>std</sub>	Continuous Flow		IC		
Point	H (i	nches of	water)	(m <sup>3</sup> / min.)	<sup>3</sup> / min.) Recorder, W		(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)		
	(up)	(down)	(difference)	X-axis	-axis (CFM)		Y-axis		
1	6.5	6.5	13.0	1.8224		58	58.4579		
2	5.2	5.2	10.4	1.6306		50	50.3947		
3	4.0	4.0	8.0	1.4309		42	42.3316		
4	2.5	2.5	5.0	1.1325		31	31.2447		
5	1.5	1.5	3.0	0.8786		24	24.1895		
By Linear Regression of	Y on X								
	Slope, m	=	36.58	827 In	tercept, b	-9.1	1241		
Correlation Co	pefficient*	=	0.99	073					
Calibration	Accepted	=	Yes/P	<del>√0**</del>					
* if Correlation Coefficier	nt < 0.990	check and	d recalibration	n again					
** Delete as appropriate.									
Remarks :									
Calibrated by		Kit Au			Checke	ed by	: Derek Lo		
Date :	30	0-Nov-15			Date		: 30-Nov-15		



				_						
Location :	ACL1					Calbratio	on Date	: 2-Oct-15		
Equipment no.		EL380			Calbration Due Dat			: 2-Dec-15		
CALIBRATION OF CON	ITINUOUS	FLOW R	ECORDER							
				Ambient Co	ndition					
Temperature, T <sub>a</sub>		301		Kelvin <b>Pressure, P</b> a 1012 r						
			Orifice Tra	ansfer Stan	dard Inforr	mation				
Equipment No.		EL086		Slope, m <sub>c</sub>	2.000	72	Intercept, bc	-0.01209		
Last Calibration Date		30-Jun-1	5		$(HxP_a/1013.3x298/T_a)^{1/2}$					
Next Calibration Date		30-Jun-1	6		=		$Q_{std} + b_c$			
				Calibration	of TSP					
Calibration	Mar	nometer R	eading	Q,				IC		
Point	H (i	inches of	water)	(m <sup>3</sup> / min.)		Recorder, W		(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup>	/35.31)	
	(up)	(down)	(difference)	X-axis		(CFM)		Y-axis		
1	6.5	6.5	13.0	1.7980		55		54.6901		
2	5.3	5.3	10.6	1.6242		50		49.7183		
3	4.0	4.0	8.0	1.41	1.4118		44	43.7521		
4	2.5	2.5	5.0	1.11	1.1174		36	35.7972		
5	1.6	1.6	3.2	0.89	951	30		29.8310		
By Linear Regression of	Y on X									
	Slope, m	=	27.4	924	Int	ercept, b =	5.	1126		
Correlation Coefficient* =			0.99	99						
Calibration Accepted =			Yes/P	<del>/o</del> **						
* if Correlation Coefficier	nt < 0.990,	check and	d recalibration	n again.						
** Delete as appropriate.										
"" Delete as appropriate.										
Remarks :										
Calibrated by		Kit Au				Checked	l by	: Derek Lo		
Date :	2	2-Oct-15				Date		: 2-Oct-15		



Location :	ACL1					Calbratio	on Date	: 30-Nov-15	
Equipment no.		EL380			Calbration Due Date :			: 30-Jan-16	
CALIBRATION OF CON	ITINIIOIIS	EI OW RI	CORDER						
GALIBRATION OF CON		T LOW KI	LOOKDEK	Ambient	Candition				
Temperature, T <sub>a</sub>		295	Ambient Condition  295 Kelvin Pressure, P <sub>a</sub> 1019						
remperature, r <sub>a</sub>		290		Kelviii	riessuie, r	a	10	19 mmHg	
	ı		Orifice T	ransfer St	andard Infor	mation			
Equipment No.		EL086		Slope, m <sub>c</sub>	2.0007		Intercept, bc	-0.01209	
Last Calibration Date		30-Jun-1	5		(H)	x P <sub>a</sub> / 10	13.3 x 298 / T	$T_a)^{1/2}$	
Next Calibration Date		30-Jun-1	6		=	$m_c$ x	$Q_{std} + b_c$		
				Calibratio	on of TSP				
Calibration	Mar	nometer R	eading	Q	std	Contin	uous Flow	IC	
Point	H (i	inches of	water)	(m <sup>3</sup> / min.)		Recorder, W		(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31	
	(up)	(down)	(difference)	Х-	X-axis		CFM)	Y-axis	
1	6.9	6.9	13.8	1.8775		56		56.4421	
2	5.5	5.5	11.0	1.6768		50		50.3947	
3	4.4	4.4	8.8	1.5	1.5005		46	46.3632	
4	2.8	2.8	5.6	1.1	982		38	38.3000	
5	1.7	1.7	3.4	0.9349		30		30.2368	
By Linear Regression of	Y on X								
	Slope, m	=	27.3	339	Inte	ercept, b =	5.0	529	
Correlation Co	pefficient*	=	0.99	91					
Calibration Accepted =			Yes/ł	No**					
* if Correlation Coefficier	nt < 0.990,	check and	d recalibration	n again.					
** Delete as appropriate.									
Damania :									
Remarks :									
<del></del>		12: 4				6		5	
Calibrated by		Kit Au				Checked	ι ву	: Derek Lo	
_ :	30	0-Nov-15				Date		: 30-Nov-15	



### Lam Geotechincs Limited

C	anbrat	ion Da	ta for m	ıgrı vol	ume Sar	npier ( i	or samp	ier)			
Location :	: ACL2a					Calbratio	on Date	:	2-Oct-15		
Equipment no.	: EL111					Calbratio	on Due Date	:	2-Dec-15		
CALIEDATION OF CONT	ITINII OUG	S EL OW DI									
CALIBRATION OF CON	ITINUOUS	S FLOW KI		Amahiamt C	Namalikian						
Temperature, T <sub>a</sub>						Ambient Condition  Kelvin Pressure, P <sub>a</sub> 10					
remperature, r <sub>a</sub>		301		Kelviii	riessuie, r	a		012	mmHg		
	I		Orifice Ti	ransfer Sta	ndard Inform	mation					
Equipment No.		EL086					Intercept, bc		-0.01209		
Last Calibration Date	30-Jun-15				$(HxP_a/1013.3x298/T_a)^{1/2}$						
Next Calibration Date		30-Jun-1	6		=	m <sub>c</sub> x	$Q_{std} + b_c$				
				Calibratio	n of TSP						
Calibration	Man	Manometer Reading Q std		std	Continuous Flow			IC			
Point	H (i	inches of v	vater)	(m <sup>3</sup> /	(m <sup>3</sup> / min.) Recorder, W		rder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31			
	(up)	(down)	(difference)	X-	X-axis (		FM)	Y-axis			
1	6.4	6.4	12.8	1.7842		58		57.6732			
2	5.2	5.2	10.4	1.6088		52		51.7070			
3	3.9	3.9	7.8	1.3941		45		44.7465			
4	2.4	2.4	4.8	1.0949		38			37.7859		
5	1.6	1.6	3.2	0.8951		30			29.8310		
By Linear Regression of	Y on X										
	Slope, m	=	30.2	014	Into	ercept, b =	3.	4129			
Correlation Co	pefficient*	=	0.99	970							
Calibration Accepted =			Yes/ł	<del>\o</del> **							
* if Correlation Coefficier	nt < 0.990,	check and	recalibration	n again.							
** Delete as appropriate.											
Remarks :											
Calibrated by		Kit Au				Checked	by	:	Derek Lo		
Date .	: 2-Oct-15					Date		:	2-Oct-15		



### Lam Geotechincs Limited

Location :		ACL2a			Calbration Date : 30-Nov-				
Equipment no.		EL111			Calbration Due Date :				
CALIBRATION OF CON	TINUOUS	FLOW RI	ECORDER						
				Ambient Condition					
Temperature, T <sub>a</sub>	295 Kelvin <b>Pressure</b> , <b>P</b> <sub>a</sub> 1019 r								
			Orifice 7	Fransfer Standard Info	rmation				
Equipment No.		EL086		<b>Slope, m</b> <sub>c</sub> 2.000					
Last Calibration Date		30-Jun-1	5	(H	$(HxP_a/1013.3x298/T_a)^{1/2}$				
Next Calibration Date		30-Jun-1	6	=		$x Q_{std} + b_c$			
				Calibration of TSP					
Calibration	Manometer Reading			Q <sub>std</sub>	Continuous Flow		IC		
Point	H (i	inches of	water)	(m <sup>3</sup> / min.)	Re	ecorder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)		
	(up)	(down)	(difference)	X-axis	(CFM)		Y-axis		
1	6.2	6.2	12.4	1.7800	63		63.4974		
2	4.9	4.9	9.8	1.5831	56		56.4421		
3	3.8	3.8	7.6	1.3948	50		50.3947		
4	2.4	2.4	4.8	1.1097	42		42.3316		
5	1.4	1.4	2.8	0.8490	30		30.2368		
By Linear Regression of Y on X  Slope, m = 34.5  Correlation Coefficient* = 0.99  Calibration Accepted = Yes/				061	ercept, b	= 2.1	043		
* if Correlation Coefficien  ** Delete as appropriate.  Remarks:	it < 0.990,	check and	recalibration	again.					
Calibrated by		Kit Au			Checke	ed by	: Derek Lo		
Date	: 30-Nov-15				Date		: 30-Nov-15		